
Notes

Unless otherwise noted, all records cited below are located in the Research Collections of the Office of History, U.S. Army Corps of Engineers, Fort Belvoir, Virginia.

I. Grounding and Early Response

1. *Anchorage (Alaska) Daily News*, 25 Apr. 1989; NPA *Oil Spill Special Edition*, vol. 13, no. 1, Jan. 1990, p. 2, hereafter cited as NPA Special Edition Newspaper; "The Exxon Valdez Oil Spill: A Report to the President from Samuel K. Skinner and William K. Reilly, May 1989," National Response Team, appendix, pp. 1-5; NPA, POLREP # 2, 9 Apr. 1989; U.S. Congress, House, Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, Hearing, *Topics Concerning the Exxon Valdez Oil Spill into the Prince William Sound of Alaska*, 101st Cong., 1st sess., 6 Apr. 1989, pp. 132-35.
2. U.S. Congress, Senate, Committee on Commerce, Science, and Transportation, Hearing, *Exxon Valdez Oil Spill and Its Environmental and Maritime Implications*, 101st Cong., 1st sess., 6 Apr. 1989, p. 5.
3. U.S. Coast Guard, "Situation Three: Environmental Emergencies, The National Response System," n.d.
4. Joseph Pratt, "The Corps of Engineers and the Oil Pollution Act of 1924," unpublished manuscript, Office of History, U.S. Army Corps of Engineers.
5. USCG, "Situation Three."

II. Department of Defense/ Corps of Engineers Response

1. Interview with Capt. Richard Larrabee, USCG, USCG Headquarters, Washington, DC, 30 Mar. 1990. All interviews cited herein were conducted by the author. "The Exxon Valdez Oil Spill: A Report to the President from Samuel K. Skinner and William K. Reilly, May 1989," National Response Team.

2. House, Subcomm. on Coast Guard and Navigation, *Exxon Valdez Oil Spill*, 101st Cong., 1st sess., pp. 19, 22.
3. Ibid., pp. 22–23, 62.
4. Senate, Comm. on Commerce, Science, and Transportation, *Exxon Valdez Oil Spill*, 101st Cong., 1st sess., pp. 20, 24, 29–30, 33, 71.
5. Interview with Maj. Gen. James D. Smith, DOMS, Pentagon, Washington, DC, 17 Dec. 1989; interview with Lt. Gen. Henry J. Hatch, HQUSACE, Washington, DC, 6 July 1990.
6. Interview with ASA/CW Robert W. Page, Pentagon, 5 Dec. 1989; interview with John Elmore, HQUSACE, 28 Sept. 1989; interview with Brig. Gen. Patrick Stevens, NPD, Portland, OR, 19 June 1989; Lt. Gen. Henry J. Hatch, “Our Vision,” n.d.; Lt. Gen. Henry J. Hatch, “Beyond the Battlefield: The Other Dimension of Military Service,” 1989 Kermit Roosevelt Lecture, n.d.; Hatch interview.
7. Interview with Maj. Gen. Patrick Kelly, HQUSACE, 8 Feb. 1990; Smith interview; Page interview.
8. Memorandum for the Secretary of Defense from David S. Addington, 6 Apr. 1990, in Initial Information Memorandum, DOMS.
9. Smith interview.
10. Kelly interview; Smith interview.
11. Smith interview.
12. “Script for Secretary of Defense Briefing Revised 31 March.”
13. Smith interview.
14. Interview with Col. Thomas Wilson, AK–JTF, Elmendorf AFB, Anchorage, AK, 15 June 1989.
15. Information Memorandum #69, 28 Sept. 1989, DOMS; ibid. #2, 10 Apr. 1989; interview with Col. William Kakel, NPA, Anchorage, AK, 13 June 1989.
16. Page interview; Kelly interview; Smith interview.
17. Kakel interview; RRT Report #58; OSC PWS POLREP #32, 9 Apr. 1989; Stevens interview; interview with Paul Zepernick, NPD, 24 June 1989.
18. Smith interview; Kelly interview; Elmore interview.
19. Interview with James Reese, NPD, 20 June 1989.
20. Reese interview; Wilson interview; Smith interview.
21. Information Memorandum #2, 10 Apr. 1989, DOMS.
22. JTF–AK, Information Memorandum: Findings and Recommendations of DOD Assessment Team, 20 Apr. 1989; Reese interview; Elmore interview.
23. NPA POLREP #4, 11 Apr. 1989; Information Memorandum #5, 13 Apr. 1989, DOMS.

24. USCG HQ Telecommunications, 11 Apr. 1989, EOC #88; Memorandum, Col. Morton J. Plumb, USAF, Director of Joint Operations, JTF to DOMS, 10 Apr. 1989, in JTF SITREP #2, 10 Apr. 1989; Report to Brig. Gen. Stevens from NPA, 1 May 1989, NPA EOC #55/56.
25. Wilson interview; interview with Kirk Shadrick, NPA, 12 June 1989.
26. Reese interview.
27. NPA POLREP #8, 15 Apr. 1989; ibid. #8, 15 Apr. 1989.
28. Commander McInerney JTF-AK to OAS/DAMO-ODS (Office of the Secretary of the Army/Operations Readiness and Mobilization Directorate—Operations and Contingency Plans Divisions), Information Memorandum: Findings and Recommendations of DOD Assessment Team, 20 Apr. 1989, DOMS.
29. Information Memorandum #8, 18 Apr. 1989, DOMS.
30. Ibid. #40, 2 June 1989; ibid. #69, 28 Sept. 1989.
31. Memorandum for Director of Military Support from Capt. Paul A. Cassiman, USN, 10 Apr. 1989, in Information Memorandum #5; NPA Special Edition Newspaper; U.S. Congress, House, Committee on Public Works and Transportation, Subcommittee on Investigations and Oversight, Hearing, *National Oil Spill Contingency Planning and Response Capabilities*, 101st Cong., 1st sess., 10 May 1989, p. 145; Information Memorandum #11, 21 Apr. 1989, DOMS.
32. *Anchorage (Alaska) Times*, 28 Apr. 1989; Information Memorandum #69; ibid. #20, 4 May 1989.

III. Growing Corps of Engineers Involvement

1. Notes from conversation with Arthur K. Hurme, HQ-USACE, 6 Sept. 1989; interview with Robert Hopman, NPD, 4 Aug. 1989.
2. ASA/CW to TAG AK Anchorage, Sen. Stevens, Sen. Murkowski, Rep. Young, Gov. Cowper, 29 Mar. 1989, EOC #70; ASA/CW to EPA, DOI, Secretary of Transportation, FEMA, 29 Mar. 1989, ibid.; Page interview.
3. CECW-D (HQUSACE, Directorate of Civil Works, Dredging Division), Memorandum for the Commander, NPD, 30 Mar. 1989, NPD.
4. Interview with Charles Puch and Ronald Henry, 14 June 1989; Brig. Gen. Stevens, Memorandum for CECW-ZA (HQUSACE, Director, Civil Works), 3 Apr. 1989, NPD.
5. "Preparations for Alaska Oil Spill Recovery Mission," 24 Mar.-10 Apr. 1989, NPD; videotape, "Dredge Yaquina"; interview with Leroy Johnson, NPP, Portland, OR, 21 June 1989.

6. Smith interview; Page interview; Stevens interview.
7. Smith interview; interview with Vice Adm. Clyde E. Robbins, USCG, Coast Guard Island, Alameda, CA, 17 Apr. 1990.
8. Elmore interview.
9. Kakel interview.
10. Stevens interview; Kakel interview; NPA, "After Action Report Review and Analysis: Alaska 1989 Oil Spill," pp. 5-6, #33.
11. Message, DOMS JTF to CDRUSACE, 11 Apr. 1989, EOC #79; Message #273, Chuck Hummer to Ken and Jake, 11 Apr. 1989, NPA EOC I-541; NPA POLREP #4, 11 Apr. 1989.
12. NPP SITREP #3, 11 Apr. 1989, EOC #76; NPP, Public Affairs Office, *Task Force Castle*, Onboard the *Yaquina*; Sunday April 16, memorandum, Ken Patterson, Chief, Navigation Branch for Master, *Yaquina*, 14 Apr. 1989.
13. CECW-D, (Chuck Hummer) memorandum to NPP, 11 Apr. 1989, NPA EOC I-932; message #267, reply from Patterson, 11 Apr. 1989, *ibid*.
14. Message, CDRUSACE (Larry Kissell) to CDR NPD, 13 Apr. 1989, NPA EOC I-220; message CECW-EOC (Larry Kissell) to CDR NPD, 14 Apr. 1989; message, DOMS to CDRUSACE, 14 Apr. 1989, HQ EOC #250.
15. Elmore interview; NPP SITREP #8, 14 Apr. 1989.
16. O. R. Harrison to Adm. Yost, 15 Apr. 1989, NPA EOC I-690.
17. "Warsila Builds Special Purpose Dredges for USSR," *World Dredging and Marine Construction*, Oct. 1986, pp. 18-23.
18. Message, Capt. Kevin Brice to George Kona, 16 Apr. 1989, NPP; NPP SITREP #9, 15 Apr. 1989, EOC #160; interview with Capt. Kevin Brice, 12 June 1989, Anchorage, AK; memorandum, Bob Hopman to Paul Zepernick, Jake Schmidt, Gen. Stevens, 18 Apr. 1989, NPD.
19. Message, USCG Marine Safety Office, Valdez/FOSC to RUEAADAD/DOMS JTF, 17 Apr. 1989, EOC #171.
20. HQ EOC tasker to CECW-D, 18 Apr. 1989, EOC #207; Kelly interview; Chuck Hummer memorandum, 21 Apr. 1989.
21. Message, DOMS to MSO Valdez/FOSC, 18 Apr. 1989, EOC #189.
22. Message, Brice to Ted Hunt, 17 Apr. 1989, NPD.
23. Chuck Hummer Memorandum, 21 Apr. 1989; message, USCG Marine Safety Office, Valdez to AIG Nine Nine One, 18 Apr. 1989, EOC #197; interview with Capt. Miguel Jimenez, Portland, OR, 20 June 1989; Brice interview.
24. *Task Force Castle*, April 19, Onboard the *Yaquina*; Brice interview; Kelly interview; Shadrack interview.
25. Message, DOMS to CDRUSACE, 19 Apr. 1989, EOC #250; NPA POLREP #13, 20 Apr. 1989; Brice interview.

26. See *Task Force Castle*, 19 and 20 Apr. 1989, Onboard the *Yaquina*, pp. 12–13.
27. Ibid.
28. Elmore interview; Kelly interview; Smith interview.
29. Information Memorandum #14, 26 Apr. 1989, DOMS; ibid. #19, 3 May 1989; Elmore interview; Kelly interview.
30. Elmore interview; interview with Commanders David B. Pascoe and Robert Luchen, USCG Headquarters, Washington, DC, 30 Mar. 1990.
31. Message, DOMS JTF to AK JTF, 22 Apr. 1989, NPA EOC I-795; Report to Brig. Gen. Stevens from NPA, 2 May 1989, NPA EOC I-56–57.
32. Elmore interview; Stevens interview; interview with George Zeiler, NPD, 22 June 1989; NPA EOC to Stevens, n.d., NPA EOC I-839; NPA, After Action Report, p. 18.
33. NPA, After Action Report, pp. 16–17; Shadrick interview; NPA Special Edition Newspaper.
34. Message, Zeiler to Elmore, 10 May 1989; Memorandum, George J. Zeiler to CDR NPA, 12 May 1989, NPA EOC I-256; Reese interview.
35. Elmore interview; Stevens interview.

IV. Command and Control/Communications

1. Robbins interview; USCG videotape, “*Exxon Valdez Oil Spill: The First Forty Days*.”
2. Robbins interview; Pascoe/Luchen interview.
3. Robbins interview.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid.
8. Smith interview.
9. Robbins interview.
10. Robbins interview; Pascoe/Luchen interview; Wilson interview.
11. Robbins interview.
12. Smith interview.
13. Stevens interview; Kakel interview.
14. Kelly interview; Stevens interview.
15. Kelly interview; interview with Richard Gutleber, NPA, Anchorage, AK, 13 June 1989; Shadrick interview.
16. Kelly interview; Kakel interview; NPA, “After Action Report,” p. 52.

17. Brice interview; interview with Eric Braun, NPP, Portland, OR, 21 June 1989; Kakel interview; NPA, "After Action Report," p. 51.
18. Robbins interview.
19. Brice interview.
20. Interview with Robert Fletcher, HQUSACE, 2 Mar. 1990.
21. Ibid.
22. Wilson interview.
23. Bob Brewin, "Military Network Takes Lead in Oil Spill Response," *Federal Computer Weekly*, 24 Apr. 1989; Information Memorandum #10, 20 Apr. 1989, DOMS; CG CC Incident Memo. #32, 30 Apr. 1989.
24. HQUSACE EOC SITREP #7, 18 Apr. 1989; *Anchorage Daily News*, 27 Apr. 1989.
25. Information Memorandum #7, 17 Apr. 1989, DOMS; Smith interview; Wilson interview.
26. Ibid.
27. Stevens interview; Gutleber interview; NPA, "After Action Report," p. 47.
28. Shadrick interview.
29. NPA Special Edition Newspaper; NPA, "After Action Report," p. 40.

V. Corps Dredges Operations

1. NPA, "After Action Report," pp. 26, 42; Johnson interview; Brice interview; *EnginEars*, May 1989.
2. Brice interview; Shadrick interview; Elmore interview; Kakel interview.
3. Kakel interview; Braun interview.
4. Braun interview; Brice interview.
5. NPA, "After Action Report," pp. 25-26.
6. Ibid., p. 32; memorandum, NPA EOC to Col. Plum, JTF, 23 Apr. 1989, NPA EOC I-781.
7. "Weathering of Crude Oil," 12 Apr. 1989, EOC #97; "Oil Spills," *Science*, vol. 244, no. 4905, 12 May 1989, p. 629.
8. Miguel Jimenez, Memorandum For Record, "Report on the Recovering and Discharging Methodology United States Army Corps of Engineers Dredge Yaquina," 3 May 1989.
9. Ibid.; Jimenez interview.
10. Ibid.
11. *International Dredging Review*, vol. 8, no. 6, June 1989, p. 7.
12. *EnginEars*, May 1989; *Pentagram*, "Corps of Engineers Helps Clean Up Alaska Spill," 4 May 1989.

13. Miguel Jimenez, "Memorandum of Improving Hopper Dredge Production When Used in Surface Contaminant Recovery," 18 May 1989.
14. "Warsila Builds Special Purpose Dredge for USSR," *World Dredging and Marine Construction*, Oct. 1986, pp. 18-23.
15. Kakel interview; Robbins interview; Brice interview.
16. Kakel interview; Robbins interview; Brice interview; Braun interview.
17. NPA POLREP #18, 25 Apr. 1989; Brice interview; conversation with Neil Neihburg, 20 June 1989.
18. Jimenez, "Memorandum of Change of Ullage Methodology," 23 Apr. 1989; Jimenez, Memorandum, 18 May 1989.
19. NPA, "After Action Report," pp. 38, 45.
20. Jimenez, Memorandum, 18 May 1989.
21. Message, FOSC to AIG Four Nine Nine One, 27 Apr. 1989, HQ EOC #340; Jimenez, MFR, 3 May 1989.
22. Johnson interview; Puch/Henry interview; Daily Report for MSO Valdez, *Yaquina*, 14 May 1989; Jimenez interview; Jimenez, Memorandum, 18 May 1989.
23. Daily Report for MSO Valdez, *Yaquina*, 12 May 1989; NPA, "After Action Report," p. 12; Jimenez interview; Brice interview.
24. Conversation with Neihburg; *International Dredging Review*, vol. 8, no. 6, June 1989, p. 6.
25. Daily Report for MSO Valdez, *Yaquina*, 17 May 1989.
26. Jimenez, Memorandum, 18 May 1989.
27. Memorandum, Col. Jouni Keravouri, DOD JTF, for CDR Corps, 26 May 1989.
28. NPD, *Nor'wester*, vol. 12, no. 3, July 1989.
29. Kakel interview; memorandum, Col. Kakel for CDR JTF-AK, 17 May 1989; M. J. Friesenhahn, Exxon Co., to FOSC, 22 May 1989.
30. Daily Report for MSO Valdez, *Essayons*, 26 June 1989; ibid., 28 June 1989.
31. Puch/Henry interview; Carpenter to Capt. J. G. Schmidtman, 17 June 1989, USCG; NPA POLREP #66, 20 July 1989.
32. Secretary Marsh to CDRUSACE, 13 June 1989, EOC #689.

VI. Shoreline Cleanup

1. Message, CG MSO Valdez to ZEN/CCGD Seventeen, Juneau, 8 Apr. 1979, EOC #55.
2. Robbins interview.
3. Message, CG FOSC and AIG Four Nine Nine One, 2 May 1989, EOC #430.

4. Dennis Kelso to Adm. Yost, 4 May 1989, NPA EOC I-260.
5. *Anchorage (Alaska) Times*, 3 May 1989; Vice Adm. Clyde E. Robbins to Otto Harrison, 9 May 1989, NPA EOC I-260; *New York Times*, 11 May 1989.
6. Robbins interview.
7. Message, FOSC to AIG Four Nine Nine One, 21 May 1989; message, CDR Luchen to Corps 1, 24 May 1989, NPA EOC I-899.
8. Frank N. Schubert, "The Amoco Cadiz Cleanup," Office of History, HQUSACE; Rudolph Chelminski, *Superwreck, Amoco Cadiz: The Shipwreck That Had to Happen* (New York: William Morrow and Company, Inc., 1987), p. 155.
9. *Anchorage (Alaska) Daily News*, 23 April, 4 May, 13 May 1989.
10. Ibid.
11. Message, FOSC to JTF, 25 May 1989, NPA EOC I-387; Information Memorandum #69, 28 Sept. 1989, DOMS.

VII. Research and Development

1. WES Fact Sheet, "Effectiveness of Cleanup Methods," n.d.; Elena B. Sparrow and Stephen D. Sparrow, "An Oil Spill Study Ten Years Later," *Agroborealis*, vol. 21, no. 1, Jan. 1989; CRREL Fact Sheet.
2. Robert Oswald to CDR and Director, CRREL, n.d.; memorandum, Lewis E. Link to CECW-O, 11 Apr. 1989, EOC #112; oil spill briefings, EOC HQUSACE, 11 Apr. 1989 and 27 Apr. 1989.
3. Lewis E. Link, Memorandum for CERD-ZA (Robert Oswald), 8 May 1989.
4. Message, CECRL-CD-TR (CRREL Counsel) to CERD-C1 (HQUSACE Research and Development Directorate), 28 Apr. 1989; interview with William Rushing, HQUSACE, 16 Mar. 1990.
5. Message, DOMS to USACE, 27 Apr. 1989, EOC #342.
6. Message, CECRL-PP to CERD-C1, 28 Apr. 1989, Research and Development Directorate, HQUSACE.
7. Message, CECRL-TD (Lewis E. Link) to CECRL-PP, 4 May 1989; message, Joe to Greg, 5 May 1989.
8. Shadrick interview; Kakel interview; message, Joe to Greg, 4 May 1989.
9. Shadrick interview.
10. Pete Kirby and Ray Montgomery, Memorandum For Record, 16 May 1989; Jacob F. Redlinger and James R. Reese, Memorandum thru Chief, CENPD-CO-C for Division Commander, 11 May 1989.
11. Reese interview; conversation with Ray Montgomery, WES, 31 May 1989; Kakel interview; Rushing interview.

12. Reese, Memorandum for Chief, CENPD-PL-ER, 26 Nov. 90.
13. Kirby and Montgomery, MFR, 16 May 1989; Reese and Redlinger memorandum, 11 May 1989; *Clarion (Mississippi) Ledger*, 18 May 1989; *Vicksburg (Mississippi) Evening Post*, 18 May 1989.
14. Kakel interview; Kelly interview.
15. Memorandum, Maj. Gen. J. D. Smith to Lt. Gen. McInerney, 10 May 1989, NPA EOC I-209; message, McInerney to Vice Adm. Clyde E. Robbins, 16 May 1989, EOC #559; memorandum, Col. Keravuori, Chief, DOD-JTF for CDR US Corps (EOC), 26 May 1989, EOC #613.
16. Memorandum for CDR, USACE, Daily Staff Journal, 26 Apr. 1989.
17. Lewis E. Link, Memorandum for CDR USACE (William Rushing), n.d.
18. Memorandum for CDR, USACE, Daily Staff Journal, 26 Apr. 1989; James R. Hanchey, Memorandum for the Director of Civil Works, 18 May 1989; *Tech-Tran*, vol. 14, no. 3, summer 1989.
19. Fact Sheet, 24 Apr. 1989, WES; U.S. Congress, House, Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, Hearings on H. R. 2158, *To Provide Better Maritime Safety For Prince William Sound, Alaska, and For Other Purposes*, 101st Cong., 1st Sess., 11 May 1989, pp. 97-109.
20. William Rushing, Memorandum for Record, 15 Apr. 1989, R&D.
21. Rushing, Fact Sheet, 24 Apr. 1989, WES.
22. Information Paper, "Bioremediation of the Alaska Oil Spill," EOC SITREP #27, 16 May 1989.

VIII. Funding and Reimbursement

1. Hatch interview; notes from conversation with Lester Edelman, HQUSACE, 14 Sept. 1990; message, DOMS-JTF to Commandant USCG, 15 May 1989, EOC #543.
2. Interview with Dale Ringer, HQUSACE, 1 Sept. 1989.
3. General Accounting Office, "Federal Costs Resulting From the *Exxon Valdez* Oil Spill," Jan. 1990, p. 19.
4. E. Scott Chronister, Memorandum for John Elmore, 8 Apr. 1989, EOC #37.
5. Ringer interview; CERM-B (Bronel Jennell), Information Paper, 11 May 1989.
6. Lt. Col. Roy Carlson, Memorandum for CDR, USACE, 11 Apr. 1989, EOC #77; POLREP #12, 19 Apr. 1989.
7. Message, DOMS JTF to RUEADWD/DIRMILSPT DCSOPS, etc., 13 Apr. 1989, EOC #167; Ringer interview.

8. Ringer interview.
9. Memorandum, CENPD-RM-B (Tim Hiller) to Brig. Gen. Stevens, 26 Apr. 1989.
10. Message, HQUSACE to NPP, NPD, and other field offices, 1 May 1989.
11. Message, DOMS-JTF to Commandant USCG, 15 May 1989, EOC #543; memorandum, John F. Wallace, Director Resource Management, to Michael Melburne, Director of Financial Management, DOD, 4 Aug. 1989, RM.
12. Phone conversation, Capt. Anderson with Tim Hiller, NPD, 14 July 1989, copy of phone log in records of Resource Management, HQUSACE.
13. GAO, "Federal Costs Resulting from the Exxon Valdez Oil Spill," pp. 2-3. 23-24.

Conclusion

1. Kakel interview; Robbins interview; Stevens interview; Elmore interview.
2. Hatch interview.
3. Smith interview; Stevens interview; Elmore interview.
4. Wilson interview; message, Lt. Gen. Thomas G. McInerney to CDR NPP, 13 June 1989, NPA EOC I-531.
5. Robert W. Page to Lt. Gen. Henry J. Hatch, 8 June 1989, NPA EOC I-945; notes from conversation with Capt. Miguel Jimenez, 20 June 1989; Jimenez, MFR, 3 May 1989.

Epilogue

1. Larrabee interview; U.S. Congress, Senate, Subcommittee on Environmental Protection, Hearing, *Adequacy and Effectiveness of the Oilspill Cleanup in Prince William Sound, Alaska*, 101st Cong., 1st sess., 19 Apr. 1989, p. 46.
2. GAO, "Adequacy of Preparation and Response to *Exxon Valdez* Oil Spill," Oct. 1989, p. 1.
3. Larrabee interview; U.S. Congress, House, Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, Hearings on H.R. 2158, *Prince William Sound Oil Spill Response Act*, 101st Cong., 1st sess., 11 May 1989, p. 5.
4. Larrabee interview.
5. "Interagency Planning Workshop: Oil Spill Research and Development, Report of the Workshop Conducted September 26-27, 1989, Coast Guard Research and Development Center, Groton, Connecticut," Revised 1990; interview with William Rushing, HQUSACE, 16 Mar. 1990.

6. Kakel interview; Wilson interview; Shadrick interview; Johnson interview; Jimenez conversation; Brice interview.
7. Lewis E. Link, Memorandum for CDR USACE (William Rushing), n.d.; Rushing interview.
8. Larrabee interview.
9. GAO, "Response to *Exxon Valdez* Oil Spill," p. 1.